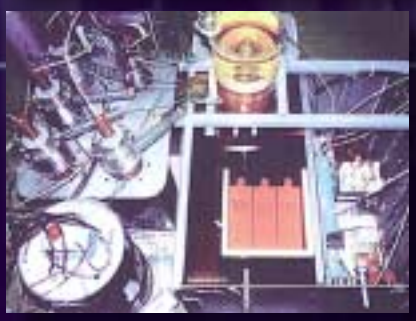
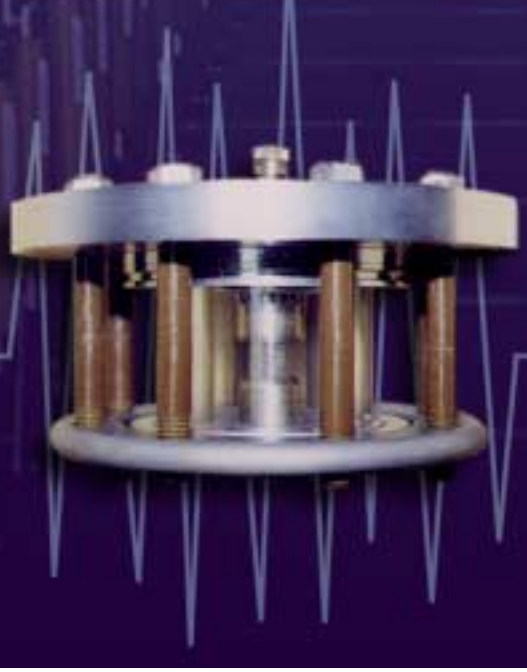
Pulsed Power

NAVSEA DAHLGREN

SURFACE WARFARE CENTER DIVISION





The Pulsed Power group began in the 1970's studying electromagnetic pulse generation techniques and effects. This transitioned into a Navy pulsed power technology program in the 1980's concentrating on directed energy and charged particle beam weapons. The efforts are continuing to study pulsed electrical sources, improved switches, nonlethal directed energy, electronic attack technologies, improved detectors and diagnostics. The group has developed and patented technologies such as high-repetition-rate hydrogen spark gaps, long-time-constant liquid energy storage systems, high-power bistable photoconductive switches, optical pseudospark switches, and repetitive power transfer for electrothermal guns.

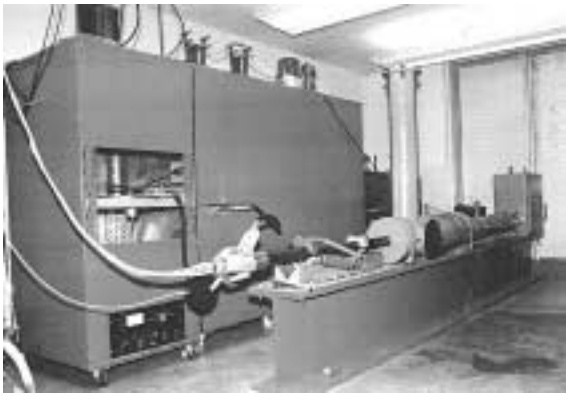
Objective

To research, develop and prototype systems and technologies associated with the generation, storage, detection, shaping and control of electromagnetic energy. The group conducts experimental and theoretical efforts primarily focused on providing high-peak power electrical energy for pulsed power systems as well as associated diagnostics. These efforts generally support the understanding and development of short-pulse high-voltage and high-current devices.

4-MEGAJOULE CAPACITOR BANK

Capabilities

- High Power Gigawatt Switching
- Energy Storage
- Pulsed Forming Lines and Networks
- Nanosecond Triggering Systems
- Water Breakdown
- 100 Kiloamp Spark Gaps
- Short Pulse RF Sources
- Electric and Electrothermal Guns
- Megawatt Optically Controlled Solid State Switches
- Hertzian Oscillators
- Megajoule Capacitor Banks
- 10 Kilohertz Hydrogen Switches
- Megavolt Marx Generators
- Ultra Wideband Devices
- Nanosecond Electrical and Optical Diagnostics
- Directed Energy
- Pulsed Corona Devices
- Impulse Radar
- Electromagnetic Effects
- High Energy Lasers
- Charged Particle Beams
- High Power Microwaves



ELECTROTHERMAL GUN

NAVSEA DAHLGREN Surface Warfare Center Division

NSWCDD/MP-98/B

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